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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/749,893	12/31/2003	William Thomas Carter JR.	RD-28158-1	8902

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GENERAL ELECTRIC COMPANY  
GLOBAL RESEARCH  
PATENT DOCKET RM. BLDG. K1-4A59  
NISKAYUNA, NY 12309

EXAMINER
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KASTLER, SCOTT R

ART UNIT	PAPER NUMBER
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1742

MAIL DATE	DELIVERY MODE
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06/11/2007

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

# Office Action Summary

Application No.

10/749,893

Applicant(s)

CARTER ET AL.

Examiner

Scott Kastler

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 12 October 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-49 is/are pending in the application.
- 4a) Of the above claim(s) 37-49 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-14 and 17-35 is/are rejected.
- 7) ☒ Claim(s) 15,16 and 36 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 12/31/03.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

***Election/Restrictions***

Applicant's election with traverse of Group I (claims 1-36) in the reply filed on 10/12/2006 is acknowledged. The traversal is on the ground(s) that the method claims include all processes possible with the claimed apparatus is not persuasive because as stated in the original restriction requirement, the independent method claims all require either cooling and solidification (see independent claim 37) or reaction with a specific composition (see claim 47), where these requirements are not encompassed or required by the claimed apparatus. The requirement is still deemed proper and is therefore made FINAL.

Claims 37-49 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on 10/12/2006.

***Claim Objections***

Claims 4, 7, 14, 18, 21-26, 29 and 30 are objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. The above claims are not properly further limiting for the following reasons:

1. With respect to claims 4, 7, 21-26, 29 and 30, these claims recite only materials to be processed by the claimed apparatus (specific metals or compounds to be used) and it has been well settled that the manner or method of use of an apparatus cannot be relied upon to further distinguish claims to the apparatus itself. see MPEP 2114 and 2115.

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2. With respect to claim 14 the term "in the shape of a frame" is not further limiting because a frame can have any desired shape.

3. With respect to claim 18, the requirement that the electrode be electrically conductive is not further limiting because all electrodes are electrically conductive.

Claims 10 and 15 are objected to because of the following informalities:

With respect to both claims, the term "the consumable electrode" lacks proper antecedent basis.

Appropriate correction is required.

***Claim Rejections - 35 USC § 102***

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

Claim 34 is rejected under 35 U.S.C. 102(b) as being anticipated by Shimizu et al.

Shimizu et al teaches an electroslog cold hearth system including a cold hearth vessel (2) holding a pool of liquid metal and a slag layer, an ingot mold (1) communication with the vessel (2) through an overflow dam (see fig. 3 and col. 2 line 65-col. 3 line 5 for example) and a source of raw material in the form of a consumable electrode (5) laterally set off from the ingot mold (1) thereby showing all aspects of the above claim.

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Claims 1, 4-14 and 17-32 are rejected under 35 U.S.C. 102(e) as being anticipated by Jackson et al. Jackson et al teaches an electroslag cold hearth refining system, including a water cooled copper hearth (90 and 300B for example) with water cooled overflow walls leading to an ingot mold (116B for example) where the liquid slag and metal within the hearth can be heated electrically through the use of an electrode (see col. 6 lines 50-51 for example, where electrodes are recited as a suitable heat source) which can be moved both vertically and horizontally with respect to the hearth and where the source material is supplied from a location (52) both above and laterally removed from the mold, thereby showing all limiting aspects of the above claims since the materials processed or used with the claimed apparatus cannot be relied upon to further distinguish claims to the apparatus itself. See MPEP 2114 and 2115.

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2, 3 and 33- 35 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jackson et al in view of Shimizu et al. As applied to claim 1 above, Jackson et al shows all aspects of the above claims except the use of a consumable electrode as the source of the material. Shimizu et al teaches that electrodes were known in the art at the time the invention was made as desirable source materials for electroslag cold hearth refining, where the electrode is melted or consumed. It is noted that the above rejected claims do not require that the

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consumable electrode be connected to any electrical power source, only that it supply the source material for refining. Because Jackson et al also processes material in substantially the same manner as Shimizu et al, motivation to provide the material in the more efficient electrode form described by Shimizu et al to the system of Jackson et al, would have been a modification obvious to one of ordinary skill in the art at the time the invention was made.

#### ***Allowable Subject Matter***

Claims 15, 16 and 36 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

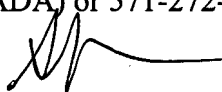
#### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Scott Kastler whose telephone number is (571) 272-1243. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Roy King can be reached on (571) 272-1244. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Scott Kastler  
Primary Examiner  
Art Unit 1742

sk